

## Multimodal Therapy (MMT) for children with ADHD

Benefit-cost estimates updated June 2016. Literature review updated April 2012.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our [Technical Documentation](#).

**Program Description:** These treatments target more than one dimension with psychosocial interventions. For instance, many therapies provide behavioral training to parents, school consultations with teachers, and self-control training with children. In this analysis, all studies utilized either behavioral or cognitive-behavioral orientations.

### Benefit-Cost Summary Statistics Per Participant

#### Benefits to:

Taxpayers	\$1,835	Benefit to cost ratio	\$0.30
Participants	\$769	Benefits minus costs	(\$6,177)
Others	\$3,738	Chance the program will produce	
Indirect	(\$3,720)	benefits greater than the costs	33 %
<u>Total benefits</u>	<u>\$2,623</u>		
<u>Net program cost</u>	<u>(\$8,800)</u>		
Benefits minus cost	(\$6,177)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2015). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

## Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to: <sup>1</sup>	Benefits to:				
	Participants	Taxpayers	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Crime	\$0	\$1,493	\$3,320	\$749	\$5,561
Labor market earnings associated with test scores	\$1,040	\$472	\$461	\$0	\$1,973
K-12 grade repetition	\$0	\$2	\$0	\$1	\$3
K-12 special education	\$0	\$20	\$0	\$10	\$29
Health care associated with disruptive behavior disorder	\$12	\$36	\$44	\$18	\$109
Costs of higher education	(\$282)	(\$187)	(\$87)	(\$94)	(\$650)
Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$4,403)	(\$4,403)
Totals	\$769	\$1,835	\$3,738	(\$3,720)	\$2,623

<sup>1</sup>In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

<sup>2</sup>"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

<sup>3</sup>"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

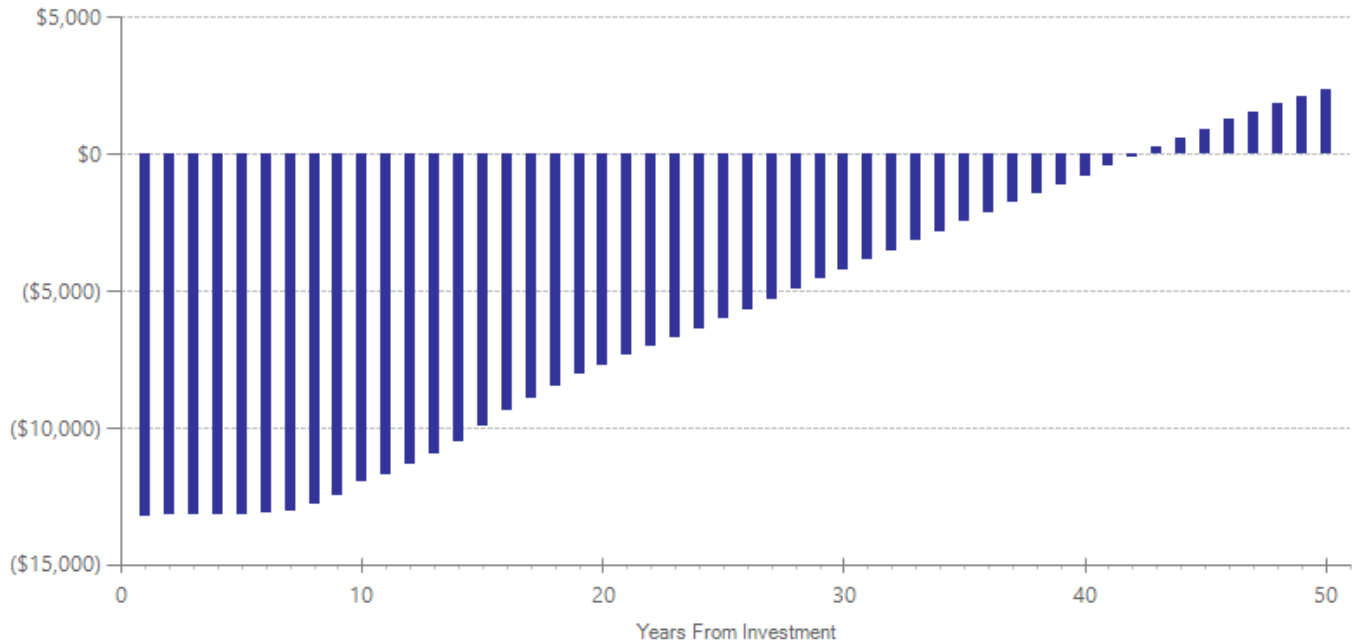
## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$9,120	2010	Present value of net program costs (in 2015 dollars)	(\$8,800)
Comparison costs	\$950	2010	Cost range (+ or -)	20 %

Per-participant costs are based on the average cost of intensive behavioral treatment reported in Jensen et al., (2005). Cost-effectiveness of ADHD treatments: findings from the Multimodal Treatment Study of children with ADHD. *American Journal of Psychiatry* 162, 1628–1636. Comparison costs are based on the average DSHS reimbursement for treatment of child ADHD.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our [Technical Documentation](#).

## Detailed Annual Cost Estimates Per Participant



The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the “break-even” point from a budgeting perspective. If the dollars are negative (bars below \$0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach \$0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above \$0, the benefits of the program exceed the initial investment.

## Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Crime	1	81	-0.430	0.230	16	-0.430	0.230	26	-0.190	0.062
Disruptive behavior disorder symptoms	7	362	-0.229	0.096	9	-0.109	0.068	12	-0.341	0.007
Attention deficit hyperactivity disorder symptoms	9	453	-0.079	0.079	9	0.000	0.005	10	-0.186	0.125
Global functioning	1	30	0.141	0.256	9	0.000	0.011	10	0.151	0.582
Test scores	5	324	0.023	0.079	9	0.014	0.087	17	0.023	0.774

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our [Technical Documentation](#).

## Citations Used in the Meta-Analysis

- Abikoff, H., Hechtman, L., Klein, R. G., Weiss, G., Fleiss, K., Etcovitch, J., . . . Pollack, S. (2004). Symptomatic improvement in children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(7), 802-811.
- Chacko, A., Wymbs, B.T., Wymbs, F.A., Pelham, W.E., Swanger-Gagne, M.S., Girio, E., . . . O'Connor, B. (2009). Enhancing traditional behavioral parent training for single mothers of children with ADHD. *Journal of Clinical Child and Adolescent Psychology*, 38(2), 206- 218.
- Hechtman, L., Abikoff, H., Klein, R.G., Weiss, G., Resnitz, C., Kouri, J., . . . Pollack, S. (2004). Academic achievement and emotional status of children with ADHD treated with long-term methylphenidate and multimodal psychosocial treatment. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(7), 812-819.
- Hechtman, L., Etcovitch, J., Platt, R., Arnold, L.E., Abikoff, H.B., Newcorn, J.H., . . . Wigal, T. (2005). Does multimodal treatment of ADHD decrease other diagnoses? *Clinical Neuroscience Research*, 5(5-6), 273-282.
- Horn, W.F., Ialongo, N.S., Pascoe, J.M., Greenberg, G., Packard, T., Lopez, M., . . . Puttler, L. (1991). Additive effects of psychostimulants, parent training, and self-control therapy with ADHD children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 30(2), 233-240.
- Klein, R.G., & Abikoff, H. (1997). Behavior therapy and methylphenidate in the treatment of children with ADHD. *Journal of Attention Disorders*, 2(2), 89-114.
- MTA Cooperative Group. (1999). A 14-month randomized clinical trial of treatment strategies for attention-deficit hyperactivity disorder. *Archives of General Psychiatry*, 56(12), 1073-1086.
- Pfiffner, L.J., Yee Mikami, A., Huang-Pollock, C., Easterlin, B., Zalecki, C., & McBurnett, K. (2007). A randomized, controlled trial of integrated home-school behavioral treatment for ADHD, predominantly inattentive type. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46(8), 1041-1050.
- van der Oord, S., Prins, P.J.M., Oosterlaan, J., & Emmelkamp, P.M.G. (2007). Does brief, clinically based, intensive multimodal behavior therapy enhance the effects of methylphenidate in children with ADHD? *European Child & Adolescent Psychiatry*, 16(1), 48-57.

For further information, contact:  
(360) 664-9800, [institute@wsipp.wa.gov](mailto:institute@wsipp.wa.gov)

Printed on 12-19-2016



### Washington State Institute for Public Policy

The Washington State Legislature created the Washington State Institute for Public Policy in 1983. A Board of Directors-representing the legislature, the governor, and public universities-governs WSIPP and guides the development of all activities. WSIPP's mission is to carry out practical research, at legislative direction, on issues of importance to Washington State.